The Abstract of the Disclosure is objected to because is does not meet the requirement of the MPEP for US application. Correction is required. See MPEP 608.01(b).

Applicant is reminded of the proper content of an Abstract of the Disclosure.

In chemical patent abstracts, compounds or compositions, the general nature of the compound or composition should be given as well as its use, e.g., "The compounds are of the class of alkyl benzene sulfonyl ureas, useful as oral anti-diabetics." Exemplification of a species could be illustrative of members of the class. For processes, the type reaction, reagents and process conditions should be stated, generally illustrated by a single example unless variations are necessary. Complete revision of the content of the abstract is required on a separate sheet.

Applicant is respectfully requested to amend the abstract because the Abstract as presently in the case includes one or more grammatical errors suggesting that the drafter's native language was probably not English.

Applicant is advised that claims **1-8** are not presently in the instant case because original claims 1-9 have been replaced as part of applicant's substitution of a new specification, necessitating the renumbering of claims presently numbered **"1-8"**. The claims have been renumbered in order as claims **10-17** (see 37 C.F.R. § 1.126). Claim dependencies have been changed accordingly.

Claims **1-9** have been cancelled, no claims have been amended, the disclosure has been amended at numerous locations to provide a disclosure of priority document numbers at page 1 and numeorus minor grammatical and typographical error corrections throughout, and new claims **10-17** have been added as per the preliminary amendments filed as part of the substitute specification on May 3, 2006. One Information Disclosure Statement (1 IDS) filed June 4, 2007 has been received with all non-US Patent references and made of record.

Claims **10-17** remain in the case.

35 U.S.C. §101 reads as follows:

"Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter or any new and useful improvement thereof, may obtain a patent therefore, subject to the conditions and requirements of this title."

Claims **14 and 15** are rejected under 35 U.S.C. §101 because the claimed recitation of a use, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. §101. See for example *Ex parte Dunki,* 153 USPQ 678 (Bd. App., 1967) and *Clinical Products, Ltd. v. Brenner,* 255 F. Supp. 131, 149, 149 USPQ 475 (D.D.C. 1966).

Applicant is requested to note that the term "using" at line 1 of claim **15** needs to be replaced. Examiner also suggests that the step provided, "applying the compound to the skin," is incomplete because the actual treatment probably involves -- applying a pharmaceutical composition comprising a compound of claim **1** -- to the skin of the host in need thereof. See also the last line of claim **14** wherein the term "for use" also needs to be replaced in a similar manner.

Appropriate amendment of the noted claims is respectfully requested.

Claims **10-15** are rejected under 35 U.S.C. §112, first paragraph, because the specification, while being enabled for certain palmitic or stearic acid esters of uridine, does not reasonably provide enablement for any other shorter chain or longer chain analogues as active ingredients in a pharmaceutical composition or enablement as an effective ingredient in the reduction and/or treatment of sun burn; e.g. to act as a sun block or a sun-tan-preventative agent. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The fundamental issue here is whether practicing the full scope of the instant invention is possible without undue experimentation. As provided for in *In re Wands* (858 F.2d 731, 737; 8 USPQ 2d 1400, 1404 (Fed Cir. 1988) the minimum factors to be considered in determination of whether a conclusion of "undue experimentation" is appropriate are as follows:

A. The breadth of the claims: The instant claims are directed to a vast array acyl nucleosides as the active ingredient in pharmaceutical compositions and the administration thereof to prevent the formation of melanin in human skin during exposure to sun light that

includes UVA and/or UVB wavelengths of light. The metes and bounds of the genus of compounds being claimed as active ingredients is indeterminate because the terms "ribonucleoside" and "deoxyribonucleoside" have not been defined in the claims in terms of structures to be included and/or structures to be excluded.

B. The nature of the invention: This issue is described in the previous paragraph.

C. The state of the prior art: Some of the instant claimed compounds and the instant claimed method is taught in US Patent **6,348,451 (von Borstel et al.)** at column 21, lines 30-39, particularly lines 31-32, and associated explanations in the same column and in neighboring columns.

D. The level of one of ordinary skill: In view of the above cited prior art, the level of skill of the ordinary practitioner would be expected to be high.

E. The level of predictability in the art: In view of the above cited prior art, the level of predictability in the art would be expected to be high.

F. The amount of direction provided by the inventor: Applicant has disclosed test data (last three pages of the disclosure) wherein a palmitic acid ester of uridine and a stearic acid ester of uridine have been shown to inhibit the formation of melanin in mouse melanoma cells in culture. The experimental description did not specify that the mouse melanoma cells in culture were actually exposed to a light source during the test period and that the light source included UVA and/or UVB wavelengths.

G. The existence of working examples: This issue is discussed in the previous paragraph.

H. The quantity of experimentation needed to make or use the invention based on the content of the disclosure is deemed to be excessive because the enabling instant disclosure is limited to only two examples while the subject matter of the noted claims has a scope vastly larger. And, even though the prior art does support an argument in favor of enablement, it does not support the enablement of such a vast scope of active ingredients as are provided for by the noted claims. In addition, the test protocol is deemed to be unconvincing as enabling support because applicant has not established that the damage to UV-irradiated skin is effectively

treated, or reduced, with any one of the instant claimed active ingredients; i.e. examiner has not seen any correlation between treating or reducing sun damage to UVA and/or UVB-exposed skin, and the treatment of melanoma cells in culture as disclosed herein.

Claims **10, 11 and 13-17** are rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim **10** at lines 2-3, the term "fatty acid" is technically erroneous because the actual scope of alternative structures includes both mono- and di-carboxylic fatty acids.

In claim **10** the term "[a]n acyl ribonucleoside or an acyl deoxyribonucleoside compound" is incomplete in that neither included subgenus defines the particular location of the "acyl" substituents or the intended structural metes and bounds of the included terms "ribonucleoside" and "deoxyribonucleoside," e.g. the particular chemical structures of the nucleosides bases or the particular locations of the "deoxy-" sugars where hydroxyl group(s) are missing have not been specified. Said term is also inconsistent with the subsequent description of the "acyl" substituent as either singular or plural. Clarification of the intended metes and bounds of the claimed subject matter is respectfully requested. And, at the end of the claim, the term "can be esterified with the nucleoside" is a conditional process limitation and therefore an improper limitation in a compound claim.

In claim **11** there are 22 specific and subgeneric chemical names. The species names (the 2nd, 7th and 10th names) are acceptable as is. The remainders of the names are grammatically incorrect because the instant claim is directed to "[a] compound, and these names are each directed to multiple different compounds. Examiner suggests that introduction of the grammatically appropriate indefinite article (-- a -- or -- an --) preceding each of these names would be one way to correct the grammatical errors.

Claim **11** is directed to subject matter not provided for in claim **10** thereby rendering claim **11** improperly dependent for failure to narrow the subject matter of the claim from which it depends; e.g. substituents defined in claim **11** (last line) are not provided for in claim **10**.

Claim **13** is an improperly dependent claim because it fails to further limit the subject matter of the claim from which it depends; i.e. a "fatty acid" by definition can only be a "carboxylic acid." Cancellation or other appropriate amendment is respectfully requested.

Claim **14** is, in view of the medicinal subject matter of claim **15**, more properly styled as a -- pharmaceutical composition -- claim. One possible format for this type of claim is as follows: -- A pharmaceutical composition comprising {active ingredient(s)} in combination with a pharmaceutically acceptable carrier.--. Appropriate amendment to acknowledge the medicinal character of the claimed compositions is respectfully requested.

In claim **14** at lines 19 and 21, the variable "S" is presented as having two different definitions, a confusing situation. Examiner suggests that the first definition wherein S^- is defined as an anionic "counterion" should be changed to some alternative (e.g. -- An^- -- or the like).

In claim **14** at line 17, the term " $CONR^{3+}\ S^-$ " appears to be directed to a quaternary carboxamido group, as substituent group not previously known to be a stable functionality to this examiner. Applicant is respectfully requested to provide some showing that this functionality is actually possible, or possibly to amend the group to be an example of the well known quaternary ammonium salt;
e.g. -- CH_2-$NR_3^+\ S^-$ --.

In claim **14** at lines 22-23, the definition of variable "R^1", "R^2"and "R^3" in part "d)" is incomplete because said definitions is directed to both compounds and to free radicals, because the generic structures "I" and "II" at line 4 fail to include the possibility of dinucleosidyl dicarboxylate esters. A clarifying amendment is respectfully requested.

In claim **14** at line 24, the term "and derivatives thereof" is renders the instant claim incompletely defined because the particular structural variations implied thereby have not been defined with particularity in the instant claim. Deletion of the noted term is respectfully requested.

In claim **14** at line 25 and at line 27, the term "acid radical" is unclear because the location of the open valence has not been specified. Did applicant intend the term to read -- acid acyl radical --?

In claim **14** at lines 29-31, the terminology provided suggests that applicant has limited the claim with a -- proviso --. Examiner respectfully suggests that to avoid confusion, all provisos should be so labeled, and presented at the end of the claim in order to avoid confusion concerning what part or parts of the claim said provisos apply to.

Claim **15** implies that the process step is a step taken after the host skin is explosed to UVA or UVB. Is this a process step that effectively reduces skin damage by prior administration or application to the skin, as in a sun screen, or only following said exposure? Appropriate clarification is respectfully requested.

Claims **16-17** are incomplete because the process disclosed in the instant specification has a critical requirement for a dehydrating reagent; e.g. molecular sieves. Examiner additionally suggests that the terms "acyl group donor" in claim **16** and "acyl donor" in claim **17** would benefit from reference to the definitions of "acyl substituents" as provided in earlier claims particularly if said definitions were incorporated into one or both of these claims.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. §102 that form the basis for the rejections under this section made in this Office action:

"A person shall be entitled to a patent unless -

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent."

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States."

(e) the invention was described in

(1) an application for patent described under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application filed under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a)."

(f) he did not himself invent the subject matter sought to be patented."

Claims **10-15** are rejected under 35 U.S.C. §102 (**b**) as being anticipated by **von Borstel et al.** (US **6,348,451**; PTO-1449 ref. **B**).

Applicant is referred to column 13, through column 17 (compounds and compositions) and to column 17 through column 20 (therapeutic uses) wherein the instant claimed subject matter is clearly anticipated. See also column 21 at lines 30-56 (treatment of radiation damage to skin), Tables 1, 2 and 3 at columns 26-27 and 30 (compounds), and claims ***1 and 4-5*** (wound healing including burns to the skin) wherein further disclosures also anticipate the instant claimed subject matter.

Similar disclosures are also found in **von Borstel et al.** (**WO89/03837 A1**; PTO-1449 ref. **O**); **Krauch et al.** (PTO-1449 ref. **R**; see compounds III and IV at pages 385-386); **Yun et al.** (PTO-1449 ref. **T**; see page 254, Figure 1, compounds 2a-2c); **Hammel et al.** (PTO-1449 ref. **W**, see the compound "DOT" in Figure 1 on page 195); **Huang et al.** (PTO-1449 ref. **X**, see compounds "2,", "5" and "6" at page 682); and **Parang et al.** (PTO-1449 ref. **Y**, see compounds 5a-5d at page 419, compounds 5a-5h on page 422, and the compounds listed in Table 1 at page 423).

Claims **10-14** are rejected under 35 U.S.C. §102 (**a**) and/or (**b**) as being anticipated by **Matsuda et al.** (EP **0 450 102 A1**; PTO-1449 ref. **M**).

Applicant is referred to pages 14-16, wherein the subject matter of claims ***1-8*** anticipate the instant claimed compound and composition claims.

Claims **10-14** are rejected under 35 U.S.C. §102 (**a**) and/or (**e**; see US priority documents cited) as being anticipated by **Susilo** (WO **02/088159 A1**; PTO-1449 ref. **N**).

Applicant is referred to the Abstract, to pages 11-14 (compounds and pharmaceutical formulations), to compounds 5 and 5' at page 39, to the compounds disclosed by claim ***1*** beginning at page 48, and to the compounds illustrated in Figure 3, all of which anticipate the instant claimed subject matter.

Applicant is also referred to **Uemura et al.** (PTO-1449 ref. **RA**) and **Ozaki et al.** (PTO-1449 ref. **SA**) wherein anticipatory disclosures of enzyme-aided acylation of nucleosides may also be found.

Claims **16-17** are rejected under 35 U.S.C. §102(**a**) and/or (**b**) as being anticipated by **Moris et al.** (PTO-1449 ref. **V**).

Applicant is referred to the Abstract, to Tables III and IV at page 656, and to Table VII at page 657, wherein examples of compounds made by an enzymatic process, a process that anticipates the process of instant claims **16 and 17**, are disclosed and are included within the definition of the compounds of instant claim **1**.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. §103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 C.F.R. §1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. §103(c) and potential 35 U.S.C. §§102(f) or (g) prior art under 35 U.S.C. §103(a).

Papers related to this application may be submitted to Group 1600 via facsimile transmission (FAX). The transmission of such papers must conform with the notice published in the Official Gazette (1096 OG 30, November 15, 1989). The telephone number to FAX (unofficially) directly to Examiner's computer is 571-273-0651. The telephone number for sending an Official FAX to the PTO is 571-273-8300.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner L. E. Crane whose telephone number is **571-272-0651**. The examiner can normally be reached between 9:30 AM and 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. S. Anna Jiang, can be reached at **571-272-0627**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group 1600 receptionist whose telephone number is **571-272-1600**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status Information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see < http://pair-direct.uspto.gov >. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

LECrane:lec
04/08/2008

/Lawrence E. Crane/

Examiner, Art Unit 1623

L. E. Crane, Ph.D., Esq.
Patent Examiner
Technology Center 1600